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C-reactive protein levels and viable Chlamydia pneumoniae in carotid artery atherosclerosis.

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Abstract

BACKGROUND AND PURPOSE: An elevated serum level of C-reactive protein, an inflammatory marker, is an independent predictor of stroke and coronary artery disease. To determine whether chronic infection with Chlamydia pneumoniae, which has been identified in atherosclerotic plaques, is responsible for systemic inflammation, we studied the association between serum C-reactive protein levels and infection of carotid artery atherosclerotic plaque with viable C pneumoniae.

METHODS: Serum C-reactive protein levels were obtained before endarterectomy for carotid artery stenosis. Plaques were tested for C pneumoniae mRNA, an indicator of viability, and DNA by polymerase chain reaction of DNA and cDNA, respectively.

RESULTS: Forty-eight samples were studied, of which 18 (38%; 95% CI, 23 to 50) were infected with viable C pneumoniae as evidenced by isolated chlamydial mRNA. All 18 of these samples, plus 1 additional sample, were positive for chlamydial DNA. Serum C-reactive protein levels were higher in those with viable C pneumoniae compared with those without infection (median, 8 mg/L versus undetectable; P=0.045 by Wilcoxon rank-sum test). In multivariable models, the only independent predictor of the presence of viable C pneumoniae was a detectable C-reactive protein level (odds ratio, 4.2; 95% CI, 1.1 to 17; P=0.04).

CONCLUSIONS: Viable C pneumoniae are present in a substantial portion of carotid artery atherosclerotic plaques and are associated with increased serum C-reactive protein levels. These findings may explain the link between elevated C-reactive protein levels and the risk of cardiovascular disease and stroke but should be reproduced in a larger cohort.

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